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MYERS BIGEL SIBLEY & SAJOVEC
PO BOX 37428
RALEIGH, NC 27627

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BAUSCH, SARAE L	

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JAMES W. MOYER and ELIZABETH PARKS

Appeal 2009-0831
Application 09/912,072
Technology Center 1600

Decided[1]: June 2, 2009

Before DONALD E. ADAMS, RICHARD M. LEBOVITZ, and JEFFREY N. FREDMAN, *Administrative Patent Judges*.

FREDMAN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 involving claims to methods for genetic analysis of poinsettia plants. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

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[1] The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the decided date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

Statement of the Case

Background

"Many ornamental plants such as poinsettias are vegetatively or clonally propagated (*i.e.*, by cuttings from stock plants)" (Spec. 1, ll. 11-12). The Specification teaches that "a need exists for a method to reliably and accurately determine if a particular plant is the same cultivar as another cultivar, or if a particular plant is a member of a particular family or breeding program of plants" (Spec. 2, ll. 2-5). According to the Specification, "[g]enetic patterns of a particular plant may be obtained by producing a unique 'fingerprint' of the genome of the plant, which fingerprint will identify that plant as being of a particular genotype or cultivar (Spec. 2, ll. 16-19).

The Claims

Claims 1, 3, 5-7, 21, 23, 24, 30, 63, and 69 are on appeal[2]. Independent claim 1 is representative and reads as follows:

> 1. A method of estimating a genetic relationship between a poinsettia plant and a known poinsettia cultivar, the method comprising the steps of:
>
> (a) obtaining a DNA fingerprint of the poinsettia plant's genomic DNA by AFLP, the fingerprint comprising a collection of amplified polymorphic restriction fragments;
>
> (b) comparing the fingerprint obtained in (a) with a genomic DNA
>
> fingerprint of the known poinsettia cultivar; and

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[2] Claims 2, 4, 10, 11, 22, 27-29, 52, and 64 are objected to for being dependent upon rejected claims, but are not appealed (*see* App. Br. 2).

(c) estimating the genetic relationship between the plant and the cultivar by determining the degree of similarity between the fingerprints.

The prior art

The Examiner relies on the following prior art references to show unpatentability:

Lee R. Dice, *Measures of the Amount of Ecologic Association Between Species*, 26 ECOLOGY 297-302 (1945).

Ling et al., *Identification of Poinsettia cultivars Using RAPD Markers*, 32 HORTSCIENCE 122-124 (1997).

Rodham E. Tulloss, *Assessment of Similarity Indices for Undesirable Properties and a new Tripartite Similarity Index Based on Cost Functions in Mycology in Sustainable Development: Expanding Concepts, Vanishing Borders* (M.E. Palm and I.H. Chapela, eds. 1997).

Singh et al., *Genetic Diversity Analysis of Oryza Using Amplified Fragment Length Polymorphism*, 25 CROP IMPROVEMENT 15-20 (1998).

Loh et al., *Amplified Fragment Length Polymorphism (AFLP) Provides Molecular Markers for the Identification of Caladium bicolor cultivars*, 84 ANNALS OF BOTANY 155-161 (1999).

Barcaccia et al., *AFLP fingerprinting in Pelargonium peltatum: Its development and potential in cultivar identification*, 74 J. HORTICULTURAL SCIENCE & BIOTECHNOLOGY 243-250 (1999).

Barker et al., *Characterization of genetic diversity in potential biomass willows (Salix spp.) by RAPD and AFLP analyses*, 42 GENOME 173-183 (1999).

Keim et al., *Molecular diversity in Bacillus anthracis*, 87 J. APPLIED MICROBIOLOGY 215-217 (1999).

Arnold et al., *Predictive Fluorescent Amplified-Fragment Length Polymorphism Analysis of Escherichia coli: High-Resolution Typing Method with Phylogenetic Significance*, 37 J. CLINICAL MICROBIOLOGY 1274-1279 (1999).

The issues

A. The Examiner rejected claims 1, 3, 5-7, 21, 23-24, 63, and 69 under 35 U.S.C. § 103(a) as obvious over Ling, Loh, and Dice (Ans. 3-5).

B. The Examiner rejected claims 1, 3, 5-7, 21, 23-24, 30, 63, and 69 under 35 U.S.C. § 103(a) as being obvious over Ling, Barcaccia, and Dice (Ans. 5-8).

C. The Examiner rejected claims 1, 3, 5-7, 21, 23-24, 30, 63, and 69 under 35 U.S.C. § 103(a) as being obvious over Ling, Sukhwinder, and Dice (Ans. 8-10).

D. The Examiner rejected claims 1, 3, 5-6, 21, 23, 30, 63, and 69 under 35 U.S.C. § 103(a) as being obvious over Ling, Barker, and Tullos (Ans. 10-12).

A. 35 U.S.C. § 103(a) over Ling, Loh, and Dice

The Examiner rejected claims 1, 3, 5-7, 21, 23-24, 63, and 69 under 35 U.S.C. § 103(a) as obvious over Ling, Loh, and Dice (Ans. 3-5).

The Examiner finds that Ling teaches "RAPD analysis to distinguish the identities between Poinsettia cultivars" (Ans. 3). The Examiner finds that "Loh et al. teach a method using an AFLP marker protocol to identify and study intra- and inter- specific variations in *Caladium bicolor* cultivars, an ornamental asexual plant" (Ans. 4). The Examiner finds that

> The ordinary artisan would have had a reasonable expectation of success in using AFLP marker assay taught by Loh in the method taught by Ling et al. of Poinsettia cultivar genetic analysis because Loh et al. teach using AFLP markers to identify inter and intra-cultivars in C. bicolors, an ornamental asexual plant, like that of Poinsettia cultivars, to determine their diversity.

(Ans. 5.)

Appellants contend that the "Ling et al., alone or in any combination, does not render obvious the present invention utilizing AFLP analysis to distinguish among and between closely related poinsettia cultivars" (App. Br. 8). Appellants contend that "[o]ne of skill in the art would be well aware of the distant relationship between poinsettia and the reference plant, *Caladium*. As such, the work aimed at *Caladium*, as disclosed in the cited reference would have provided absolutely no motivation to one of skill in the art with respect to the present invention" (App. Br. 9).

Appellants contend that the Moyer Declaration (7/24/01) shows that SSR [simple sequence repeat] analysis failed in poinsettia and therefore

> it would be clear to one of ordinary skill in the art that the use of such technologies as SSR, RFLP, RAPD, AFLP, etc. to distinguish between and among poinsettia cultivars would not have been obvious. Accordingly, success using such technologies in poinsettia would be uncertain and that each would need to be tried out empirically.

(App. Br. 11).

In view of these conflicting positions, we frame the obviousness issue before us as follows:

Did the Examiner err in finding that an ordinary skilled artisan would have had motivation and a reasonable expectation of success combining the AFLP analysis method of Loh to analyze poinsettia cultivars as taught by Ling?

Findings of Fact (FF)

1. Ling teaches "[i]n recent years, randomly amplified polymorphic DNAs (RAPDs) . . . have been used for cultivar identification in many plants" (Ling 122, col. 1).

2. Ling teaches that "RAPD markers are simple, consistent, and can be analyzed at any stage of plant growth. The use of RAPD markers to differentiate poinsettia cultivars would provide for a rapid and accurate technique for cultivar identification" (Ling 122, col. 2).

3. Ling teaches that "[n]o single primer produced polymorphic bands in all cultivars. However, all cultivars were distinguishable with the combination of polymorphic bands generated by various primers" (Ling 123, col. 2).

4. Ling teaches that "[w]e have shown that RAPD markers can be used for the identification of poinsettia cultivars. . . . These results also indicate that RAPDs can be used to determine the genetic relationships among cultivars and to estimate the genetic diversity between cultivars" (Ling 124, col. 1-2).

5. Loh teaches that "[r]ecently, a novel PCR-based assay for plant DNA fingerprinting, amplified fragment length polymorphism (AFLP), has been developed which reveals significant levels of DNA polymorphism" (Loh 155, col. 2).

6. Loh teaches that AFLP "is a robust and reliable molecular marker assay and the number of polymorphisms detected per reaction is much higher than that revealed by restriction fragment linked

polymorphisms (RFLP or the PCR-based randomly amplified polymorphic DNA (RAPD) assay" (Loh 155, col. 2).

7. Loh specifically cites a variety of references using AFLP on species as diverse as wheat, rice, soybean, and tea (*see* Loh 161, col. 2). Loh teaches that the AFLP analysis "is the first report of the use of a DNA-based polymorphism assay that clearly identifies genetic differences between different *Caladium* cultivars" (Loh 159, col. 2).

8. Loh teaches that the "reliability and reproducibility of AFLP means that the molecular markers identified can be used to develop specific probes for the different cultivars, which could then be used for easy identification and patenting purposes" (Loh 161, col. 1).

9. The Examiner finds that

> The ordinary artisan would have had a reasonable expectation of success in using AFLP marker assay taught by Loh in the method taught by Ling et al. of Poinsettia cultivar genetic analysis because Loh et al. teach using AFLP markers to identify inter and intra-cultivars in C. bicolors, an ornamental asexual plant, like that of Poinsettia cultivars, to determine their diversity.

(Ans. 5.)

Principles of Law

The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) the level of ordinary skill in the art; (3) the differences between the claimed invention and the prior art; and (4) secondary considerations of nonobviousness, if any. *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966). The Supreme Court has recently emphasized that "the [obviousness] analysis

need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *KSR Int'l v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

An "obviousness finding was appropriate where the prior art 'contained *detailed enabling methodology* for practicing the claimed invention, a suggestion to modify the prior art to practice the claimed invention, and evidence suggesting that it would be successful.'" *In re Kubin*, 561 F.3d 1351, 1360 (Fed. Cir. 2009) (*citing In re O'Farrell*, 853 F.2d 894, 902 (Fed. Cir. 1988). The court commented that "[r]esponding to concerns about uncertainty in the prior art influencing the purported success of the claimed combination, this court [in *O'Farrell*] stated: '[o]bviousness does not require absolute predictability of success ... *all that is required is a reasonable expectation of success*.'" *Kubin*, 561 F.3d at 1360 (*citing In re O'Farrell*, 853 F.2d at 903-904).

Analysis

Ling teaches the use of RAPD markers to identify poinsettia cultivars (FF 1-4). Loh teaches that AFLP is a superior method to RAPD, commenting that AFLP "is a robust and reliable molecular marker assay and the number of polymorphisms detected per reaction is much higher than that revealed by restriction fragment linked polymorphisms (RFLP) or the PCR-based randomly amplified polymorphic DNA (RAPD) assay" (Loh 155, col. 2; FF 6).

Applying the *KSR* standard of obviousness to the findings of fact, substitution of the AFLP assay for the RAPD assay, as expressly motivated

by Loh, represents a predictable substitution of methods which would have been expected to predictably result in rapid differentiation of poinsettia cultivars. Such a combination is merely a "predictable use of prior art elements according to their established functions." *KSR*, 550 U.S. at 417.

We are not persuaded by Appellants' argument that "[o]ne of skill in the art would be well aware of the distant relationship between poinsettia and the reference plant, *Caladium*. As such, the work aimed at *Caladium*, as disclosed in the cited reference would have provided absolutely no motivation to one of skill in the art with respect to the present invention" (App. Br. 9). In fact, Loh specifically cites a variety of references using AFLP on species as diverse as wheat, rice, soybean and tea (*see* Loh 161, col. 2; FF 7). As is evident from Loh, the ordinary artisan routinely applies genetic analysis assays such as AFLP which were previously applied to one plant to analyze the genetic material of another plant (FF 7). As noted by the Court in *KSR*, "[a] person of ordinary skill is also a person of ordinary creativity, not an automaton." 550 U.S. at 421.

We do not find persuasive Appellants' argument that "success using such technologies in poinsettia would be uncertain and that each would need to be tried out empirically" (App. Br. 11). Appellants rely upon the Moyer Declaration (7/24/01) to support the absence of a reasonable expectation of success. Dr. Moyer states that he "would have expected this [SSR] approach to have worked as well, or even better, than AFLPs in distinguishing poinsettia cultivars" (Moyer Dec. July 24, 2001 ¶ 13).

However, the Moyer Declaration admits that even regarding the tested SSR technique, "[s]ome cultivar groups could be differentiated from each

other and formed unique clusters on the dendrogram" (Moyer Dec. July 24, 2001 ¶ 12). The ordinary practitioner would have reasonably expected that the AFLP technique which worked in a variety of other plant species would be expected to function in poinsettia (FF 7).

Further, as the Moyer Declaration notes, analysis of simple sequence repeats (SSR) operates differently than either RAPD or AFLP (Moyer Dec. July 24, 2001 ¶ 14). SSR functions by using specific primers which amplify microsatellite repeats, where the polymorphic difference is based upon differing numbers of repeats (*see* Pejic[3] 1249, col. 1). However, both RAPD and AFLP methods involve polymerase chain reaction (PCR) amplification of DNA where the polymorphic difference is simply based upon different sizes of amplified products, with RAPD randomly amplifying the DNA and AFLP specifically amplifying fragments based upon restriction enzyme digestion (*see* Pejic 1249, col. 1). Since, unlike SSR, the AFLP and RAPD techniques analyze similar types of polymorphisms, differing only in the specificity of amplification, the ordinary artisan would have reasonably expected these two methods to share similar capabilities in distinguishing poinsettia cultivars as shown by Ling (FF 1-4). Thus, the success using the RAPD technique in poinsettia cultivars is more predictive than SSR as described in the July 24, 2001 Moyer declaration.

As discussed in *Kubin*, the instant facts represent a situation where the prior art provides a detailed enabling methodology, in fact detailing all of the

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[3] Pejic et al., Comparative analysis of genetic similarity among maize inbred lines detected by RFLPs, RAPDs, SSRs, and AFLPs, 97 Theoretical and Applied Genetics 1248-1255 (1998) (cited in Evidence Appendix).

method steps required to perform the method in poinsettia (FF 1-9). There is an express teaching by Loh that AFLP is superior to RAPD, providing explicit motivation to use AFLP in the place of RAPD (FF 5). Regarding the last factor mentioned by *Kubin*, evidence that the use of AFLP on poinsettia would be successful, Ling teaches that RAPD successfully distinguishes poinsettia cultivars and Loh teaches that AFLP successfully functions on a variety of other plant species (FF 4, 7). We find that this specific evidence provides at least a "reasonable expectation of success" which is more persuasive than the evidence presented in the Moyer Declaration (7/24/01).

Conclusion of Law

The Examiner did not err in finding that an ordinary artisan would have had motivation and a reasonable expectation of success combining the AFLP analysis method of Loh to analyze poinsettia cultivars as taught by Ling.

B. 35 U.S.C. § 103(a) over Ling, Barcaccia, and Dice

The Examiner rejected claims 1, 3, 5-7, 21, 23-24, 30, 63, and 69 under 35 U.S.C. § 103(a) as being obvious over Ling, Barcaccia, and Dice (Ans. 5-8).

The Examiner finds that "Barcaccia et al. teach a method using an AFLP marker protocol to distinguish genetic relationships and diversity of *Pelagorium peltatum*, an ornamental asexual plant" (Ans. 6). The Examiner finds that "Barcacci[a] et al. motivates the ordinary artisan to use the AFLP technique because Barcacci[a] et al. teaches that using AFLP fingerprinting combines the reliability of RFLP assay with efficiency of the PCR

technique" (Ans. 7). The Examiner finds that Barcaccia teaches that "AFLP markers proved to be much more powerful and reliable tool capable of probing a large number of genomic loci per experiment and discriminating genetic differences, even between phenotypically similar individuals" (Ans. 7).

Appellants contend that "because there is no genetic relationship between geranium and poinsettia, (1) there would be no motivation to combine the cited references, and (2) even if the references were so combined there would not have been any reasonable expectation of success with respect to the present invention" (App. Br. 16).

In view of these conflicting positions, we frame the obviousness issue before us as follows:

Did the Examiner err in finding that an ordinary artisan would have had motivation and a reasonable expectation of success combining the AFLP analysis method of Barcaccia to analyze poinsettia cultivars as taught by Ling?

Findings of Fact

10. Barcaccia teaches that "[d]ue to the great number of cultivars available on the worldwide market and because many new cultivars are bred every year, additional and powerful genetic descriptors need to be developed" (Barcacci 243, col. 2).

11. Barcaccia teaches that "[a]s far as AFLP fingerprinting is concerned, this type of molecular marker combines the reliability of RFLP assay with the efficiency of the PCR technique" (Barcaccia 249, col. 2).

12. Barcaccia teaches that "[c]ompared with RAPD markers, AFLP markers proved to be a much more powerful and reliable tool capable of probing a large number of genomic loci per experiment and discriminating genetic differences, even between phenotypically similar individuals" (Barcaccia 249, col. 2).

13. Barcaccia teaches that "[a]nalysis of genomic pelargonium DNA based on the detection of AFLP markers should be capable of identifying cultivars unambiguously and definitive[ly] and, also, be effective for calculating the genetic distance between cultivars" (Barcaccia 249, col. 2).

14. Barcaccia teaches that the "ability to identify new cultivars and determine their diversity with respect to previously registered cultivars promises to be the prime requirement for a valuable flourishing decorative plant market" (Barcaccia 249, col. 2).

Analysis

Ling teaches the use of RAPD markers to detect poinsettia cultivars (FF 1-4). Barcaccia teaches that AFLP is a superior method to RAPD, commenting that "[c]ompared with RAPD markers, AFLP markers proved to be a much more powerful and reliable tool capable of probing a large number of genomic loci per experiment and discriminating genetic differences, even between phenotypically similar individuals" (Barcaccia 249, col. 2; FF 12).

Applying the *KSR* standard of obviousness to the findings of fact, substitution of the AFLP assay for the RAPD assay, as expressly motivated by Barcaccia, represents a predictable substitution of methods which would

have been expected to predictably result in rapid differentiation of poinsettia cultivars (*see* FF 10-14). Such a combination is merely a "predictable use of prior art elements according to their established functions." *KSR*, 550 U.S. at 417.

As discussed above regarding *Kubin*, the instant facts represent a situation where the prior art provides a detailed enabling methodology, in fact Ling and Barcaccia detail all of the method steps required to perform the AFLP method in poinsettia (FF 1-4, 10-14). *See In re O'Farrell*, 853 F.2d 894, 903 (Fed. Cir. 1988) ("Obviousness does not require absolute predictability of success.").

Conclusion of Law

The Examiner did not err in finding that an ordinary artisan would have had motivation and a reasonable expectation of success combining the AFLP analysis method of Barcaccia to analyze poinsettia cultivars as taught by Ling.

C. 35 U.S.C. § 103(a) over Ling, Sukhwinder, and Dice

The Examiner rejected claims 1, 3, 5-7, 21, 23-24, 30, 63, and 69 under 35 U.S.C. § 103(a) as being obvious over Ling, Sukhwinder, and Dice (Ans. 8-10).

The Examiner finds that "Ling et al. teaches a method of distinguishing genetic relationships and diversity between Poinsettia cultivars, including breeding family 'Freedom' (claim 5). The method utilizes RAPD analysis to distinguish the identities between Poinsettia cultivars" (Ans. 8). The Examiner finds that "Sukhwinder et al. teaches a method of distinguishing genetic relationships and diversity between Oryza cultivars

(rice) utilizing AFLP analysis" (Ans. 8). The Examiner finds that the ordinary artisan "would have been motivated to improve the method of genetic analysis used in Ling et al. from RAPD to the AFLP procedure taught by Sukhwinder et al. because Sukhwinder et al teaches of the advantages of using the AFLP procedure of analyzing genetic relationships and diversity as opposed to RAPD and RFLP" (Ans. 9-10).

Appellants contend that "[t]he AFLP work in rice reported by Sukhwinder et al. is not relevant to poinsettias and would not have provided the motivation to combine or any reasonable expectation of success with respect to the claimed invention that are legally sufficient to maintain the present rejection" (App. Br. 17). Appellants contend that "in view of the unpredictability of genetic fingerprinting in poinsettia . . . the use of AFLPs in poinsettias would not have been at all obvious to one of ordinary skill in the art based on Ling in view of Sukhwinder's work" (App. Br. 18).

In view of these conflicting positions, we frame the obviousness issue before us as follows:

Did the Examiner err in finding that an ordinary artisan would have had motivation and a reasonable expectation of success combining the AFLP analysis method of Sukhwinder to analyze poinsettia cultivars as taught by Ling?

Findings of Fact

15. Sukhwinder teaches that "[r]ecently a technique known as Amplified Fragment Length Polymorphism (AFLP) has been developed. . . . The technique combines the reliability and robustness of RFLP and the strength of PCR techniques. AFLP technique is considered powerful for

genome mapping, genotype identification and phylogenetic studies" (Sukhwinder 15, col. 2).

16. Sukhwinder teaches that "at 80 per cent similarity index, all the rice cultivars grouped into one cluster except Pusa Basmati 1 suggesting low level of genetic diversity among cultivars. It is also evident from the dendrogram that there is high diversity among wild species as compared with the cultivars" (Sukhwinder 18-19).

Analysis

Ling teaches the use of RAPD markers to detect poinsettia cultivars (FF 1-4). Sukhwinder teaches that "[r]ecently a technique known as Amplified Fragment Length Polymorphism (AFLP) has been developed. . . . The technique combines the reliability and robustness of RFLP and the strength of PCR techniques. AFLP technique is considered powerful for genome mapping, genotype identification and phylogenetic studies" (Sukhwinder 15, col. 2; FF 15).

Applying the *KSR* standard of obviousness to the findings of fact, substitution of the AFLP assay for the RAPD assay, as motivated by Sukhwinder, represents a predictable substitution of methods which would have been expected to predictably result in rapid differentiation of poinsettia cultivars (*see* FF 15-16). Such a combination is merely a "predictable use of prior art elements according to their established functions." *KSR*, 550 U.S. at 417.

As discussed above regarding *Kubin*, the instant facts represent a situation where the prior art provides a detailed enabling methodology, in fact Link and Sukhwinder detail all of the method steps required to perform

the AFLP method in poinsettia (FF 1-4, 15-16). *See In re O'Farrell*, 853 F.2d 894, 903 (Fed. Cir. 1988) ("Obviousness does not require absolute predictability of success.").

Conclusion of Law

The Examiner did not err in finding that an ordinary artisan would have had motivation and a reasonable expectation of success combining the AFLP analysis method of Sukhwinder to analyze poinsettia cultivars as taught by Ling.

D. 35 U.S.C. § 103(a) over Ling, Barker, and Tullos

The Examiner rejected claims 1, 3, 5-6, 21, 23, 30, 63, and 69 under 35 U.S.C. § 103(a) as being obvious over Ling, Barker, and Tullos (Ans. 10-12).

The Examiner finds that "Barker et al. teaches a method of distinguishing genetic relationships and diversity between Salix cultivars (willows) utilizing AFLP and RAPD analysis" (Ans. 11). The Examiner finds that the ordinary artisan "would have been motivated to improve the method of genetic analysis used in Ling et al. from RAPD to the AFLP procedure taught by Barker et al. because Barker et al. teaches the advantages of the AFLP method of analyzing genetic relationships and diversity as opposed to RAPD. Barker et al. motivates the ordinary artisan to preferably use AFLP instead of RAPD" (Ans. 12).

Appellants contend that "the AFLP work in willow reported by Barker et al. is not relevant to poinsettias and would not provide the requisite motivation or any reasonable expectation of success with respect to the present invention. Willow trees are unrelated taxonomically to poinsettia"

(App. Br. 18). Appellants contend that "[o]ne of ordinary skill in the art would not consider results in such distantly related plants, such as willow tree is to a poinsettia plant, to be applicable to one another" (App. Br. 18).

In view of these conflicting positions, we frame the obviousness issue before us as follows:

Did the Examiner err in finding that an ordinary artisan would have had motivation and a reasonable expectation of success combining the AFLP analysis method of Barker to analyze poinsettia cultivars as taught by Ling?

Findings of Fact

17. Barker teaches "[t]he objective of the present study was to test the use of random amplified polymorphic DNA (RAPD) . . . and amplified fragment length polymorphism (AFLP) . . . in assessing similarities and genetic diversity in biomass willows and in discriminating between very closely related biomass clones" (Barker 174, col. 1).

18. Barker teaches that "[t]he two marker systems tested, RAPDs and AFLPs, were equally informative for revealing relationships based upon similarities within the reference set of clones, but AFLPs revealed more genetic diversity and were better able to discriminate closely related clones" (Barker 182, col. 1).

Analysis

Ling teaches the use of RAPD markers to detect poinsettia cultivars (FF 1-4). Barker teaches that "[t]he two marker systems tested, RAPDs and AFLPs, were equally informative for revealing relationships based upon similarities within the reference set of clones, but AFLPs revealed more genetic diversity and were better able to discriminate closely related

clones" (Barker 182, col. 1; FF 18).

Applying the *KSR* standard of obviousness to the findings of fact, substitution of the AFLP assay for the RAPD assay, as motivated by Barker, represents a predictable substitution of methods which would have been expected to predictably result in rapid differentiation of poinsettia cultivars (*see* FF 17-18). Such a combination is merely a "predictable use of prior art elements according to their established functions." *KSR*, 550 U.S. at 417.

As discussed above regarding *Kubin*, the instant facts represent a situation where the prior art provides a detailed enabling methodology, in fact, Ling and Barker detail all of the method steps required to perform the AFLP method in poinsettia (FF 1-4, 17-18). *See In re O'Farrell*, 853 F.2d 894, 903 (Fed. Cir. 1988) ("Obviousness does not require absolute predictability of success.").

Conclusion of Law

The Examiner did not err in finding that an ordinary artisan would have had motivation and a reasonable expectation of success combining the AFLP analysis method of Barker to analyze poinsettia cultivars as taught by Ling.

SUMMARY

In summary, we affirm the rejection of claim 1 under 35 U.S.C. § 103(a) over Ling, Loh, and Dice.

We affirm the rejection of claim 1 under 35 U.S.C. § 103(a) over Ling, Barcaccia, and Dice. We affirm the rejection of claim 1 under 35 U.S.C. § 103(a) over Ling, Sukhwinder, and Dice. We affirm the rejection of claim 1 under 35 U.S.C. § 103(a) over Ling, Barker, and Tullos. Pursuant

to 37 C.F.R. § 41.37(c)(1)(vii)(2006), we also affirm the rejection of claims 3, 5-7, 21, 23-24, 30, 63, and 69 as these claims were not argued separately.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv)(2006).

AFFIRMED

Ssc:

MYERS, BIGEL, SIBLEY & SAJOVEC
PO BOX 37428
RALEIGH, NC 27627